Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application.

Listing of Claims:

1. (Currently amended) A method of localizing an antibody-metal chelate complex to a desired tissue by administering a macrocyclic metal chelate, ~~treating a subject with cancer by administration of a macrocyclic metal chelate~~, said method comprising the steps of:

(a) administering to said subject an antibody comprising an antigen recognition domain that recognizes said macrocyclic metal chelate, wherein said antibody comprises a targeting moiety that binds specifically to a ~~cancer~~ cell by binding with a member selected from a cell surface receptor and cell surface antigen, thereby forming a cell-antibody complex; and

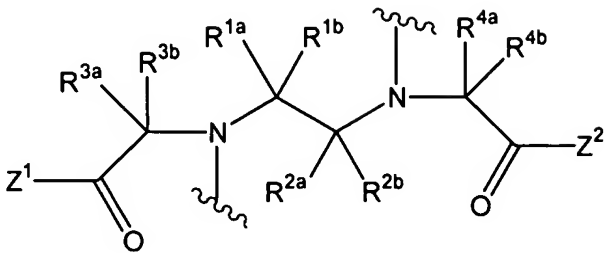
(b) administering to said subject said macrocyclic metal chelate, thereby specifically binding said macrocyclic metal chelate to said antibody to form a cell-antibody-metal chelate complex; and

(c) detecting said cell-antibody-metal chelate complex.

2. (Previously presented) The method of claim **1**, wherein said macrocyclic metal chelate comprises four nitrogen atoms.

3. (Original) The method of claim **2**, wherein at least two of said nitrogen atoms are covalently linked to a substituted or unsubstituted ethyl bridge.

4. (Previously presented) The method of claim **2**, wherein said macrocyclic metal chelate comprises the subunit:



wherein

Z^1 and Z^2 are members independently selected from OR^1 and NR^1R^2,

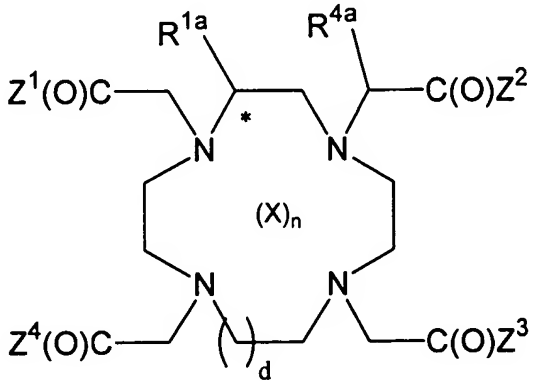
in which

R^1 and R^2 are members independently selected from H, substituted or unsubstituted alkyl and substituted or unsubstituted heteroalkyl;

R^{1a}, R^{1b}, R^{2a}, R^{2b}, R^{3a}, R^{3b}, R^{4a} and R^{4b} are members independently selected from H, substituted or unsubstituted alkyl, substituted or unsubstituted heteroalkyl, substituted or unsubstituted aryl and linker moieties.

5. (Previously presented) The method of claim **1**, wherein said macrocyclic metal chelate is a member selected from substituted or unsubstituted DOTA and substituted or unsubstituted TETA.

6. (Previously presented) The method of claim **4**, wherein said macrocyclic metal chelate has the formula:



wherein

R^{1a} and R^{4a} are members independently selected from H, substituted or unsubstituted alkyl, substituted or unsubstituted heteroalkyl, substituted or unsubstituted aryl and linker moieties;

X is a member selected from a lanthanide, an actinide, an alkaline earth metal, a group IIIb transition metal, and a metal;

Z^1, Z^2, Z^3 and Z^4 are members independently selected from OR^1 and NR^1R^2 in which

R^1 and R^2 are members independently selected from H, substituted or unsubstituted alkyl and substituted or unsubstituted heteroalkyl;

n is a member selected from 0 and 1; and

d is a member selected from 1 and 2.

7. (Original) The method of claim **1**, wherein said macrocyclic metal chelate comprises a reactive functional group.

8. (Previously presented) The method of claim **6**, wherein the carbon atom marked * is of S configuration.

9. (Cancelled)

10. (Previously presented) The method of claim **1**, wherein said targeting moiety binds specifically to said cell surface antigen.

11. (Original) The method of claim **1**, wherein the targeting moiety is covalently attached to said antibody.

12. (Original) The method of claim **10**, wherein the targeting moiety is an antibody.

13. (Original) The method of claim **11**, wherein the targeting moiety specifically binds to a protein on a cancer cell.

14. (Original) The method of claim **1**, wherein the subject is a mammal.

15. (Previously presented) The method of claim **14**, wherein the mammal is a human.

16. (Withdrawn) A method of *in vivo* imaging, said method comprising the steps of:

(a) administering to a subject an antibody comprising an antigen recognition domain that recognizes a macrocyclic metal chelate, wherein said antibody comprises a

recognition moiety that binds specifically to a cell, thereby forming a cell-antibody complex;

(c) administering to said subject said metal chelate, thereby specifically binding said compound to said antibody to form a cell-antibody-metal chelate complex; and

(d) detecting said cell-antibody-metal chelate complex.

17. (Withdrawn) The method of claim **16**, wherein said metal chelate comprises four nitrogen atoms.

18. (Withdrawn) The method of claim **16**, wherein the step of detecting is by positron emission tomography.

19. (Withdrawn) The method of claim **16**, wherein the step of detecting is by magnetic resonance imaging.

20. (Withdrawn) The method of claim **16**, wherein the step of detecting is by detection of lanthanide luminescence.

21. (Withdrawn) The method of claim **16**, further comprising, between steps (a) and (b), administering a clearing agent to said subject.

22. (Withdrawn) The method of claim **16**, wherein the subject is a mammal.

23. (Withdrawn) The method of claim **22**, wherein the mammal is a human.

24. (Previously presented) The method according to claim **1** wherein said antibody has the structure:

$$(Ab)_{n'}\text{-}L\text{-}T$$

wherein,

n′ is an integer selected from 1 to 10 ;

Ab represents an antibody comprising an antigen recognition domain that recognizes a macrocyclic metal chelate;

L is a member selected from a chemical bond and a linking group that may contain one or more functional groups; and

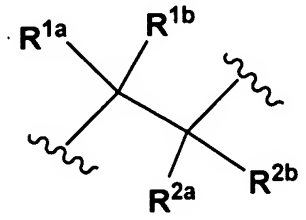
T is said targeting moiety.

25. (Previously presented) The method of claim **24**, wherein said macrocyclic metal chelate comprises four nitrogen atoms.

26. (Previously presented) The method of claim **24**, wherein said targeting moiety is an antibody that binds specifically to a cell surface antigen.

27. (Previously presented) The method according to claim **24** wherein said antibody is administered to said subject as a pharmaceutical composition comprising said antibody and a pharmaceutically acceptable carrier.

28. (Previously presented) The method according to claim **3**, wherein said substituted or unsubstituted ethyl bridge is

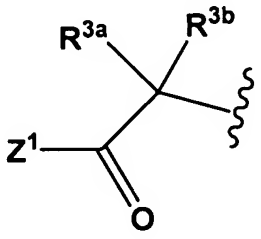


wherein

R^{1a}, R^{1b}, R^{2a} and R^{2b} are members independently selected from H, substituted or unsubstituted alkyl, substituted or unsubstituted heteroalkyl, substituted or unsubstituted aryl and linker moieties.

and wherein each "〰" indicates the attachment of the ethyl bridge to a nitrogen atom.

29. (Previously presented) The method according to claim **2**, wherein at least one of said four nitrogen atoms is covalently attached to a structure according to



wherein

Z^1 and Z^2 are members independently selected from OR^1 and NR^1R^2,

in which

R^1 and R^2 are members independently selected from H, substituted or unsubstituted alkyl and substituted or unsubstituted heteroalkyl;

R^{3a} and R^{3b} are members independently selected from H, substituted or unsubstituted alkyl, substituted or unsubstituted heteroalkyl, substituted or unsubstituted aryl and linker moieties

and wherein each "$\sim\!\!\sim$" indicates the site of attachment of the structure to a nitrogen atom.

30. (New) The method according to claim **1**, wherein said cell is a cancer cell.

31. (New) The method according to claim **1**, wherein a disease is diagnosed due to said localizing.

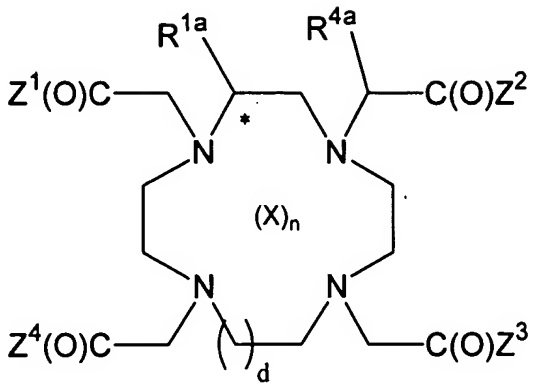
32. (New) A method of localizing an antibody-metal chelate complex to a desired tissue by administering a macrocyclic metal chelate, said method comprising the steps of:

(a) administering to said subject an antibody comprising an antigen recognition domain that recognizes said macrocyclic metal chelate, wherein said antibody comprises a targeting moiety that binds specifically to a cancer cell by binding with a member selected from a cell surface receptor and cell surface antigen, thereby forming a cell-antibody complex; and

(b) administering to said subject said macrocyclic metal chelate, thereby specifically binding said macrocyclic metal chelate to said antibody to form a cell-antibody-metal chelate complex; and

(c) detecting said cell-antibody-metal chelate complex

wherein said macrocyclic metal chelate has the formula:



wherein

R^{1a} and R^{4a} are members independently selected from H, substituted or unsubstituted alkyl, substituted or unsubstituted heteroalkyl, substituted or unsubstituted aryl and linker moieties;

X is a member selected from a lanthanide, an actinide, an alkaline earth metal, a group IIIb transition metal, and a metal;

Z^1, Z^2, Z^3 and Z^4 are members independently selected from OR^1 and NR^1R^2 in which

R^1 and R^2 are members independently selected from H, substituted or unsubstituted alkyl and substituted or unsubstituted heteroalkyl;

n is a member selected from 0 and 1; and

d is a member selected from 1 and 2.

33. (New) The method according to claim **32**, wherein

said R^{1a} and R^{4a} are H;

said Z^1, Z^2, Z^3 and Z^4 are OH;

said d is 1; and said n is 1.

34. (New) The method according to claim **32**, wherein said targeting moiety is an antibody that binds specifically to a cell surface antigen.

35. (New) The method according to claim **34**, wherein said targeting moiety is anti-CEA.

36. (New) The method according to claim **33**, wherein said targeting moiety is anti-CEA.